[redacted]

2. The Culebra Municipal Solid Waste Landfill (the "Landfill") is located off PR-251, 2.3 km northwest of the Benjamín Rivera Noriega Airport, Flamenco Ward, in the Municipality of Culebra in the Commonwealth of Puerto Rico.

3. The Municipality is the owner and operator of the Landfill and is an owner of the property on which the Landfill is located.

[redacted]

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9. Section 7003(a) of RCRA, 42 U.S.C. § 6973(a) states in pertinent part that: "upon receipt of evidence that the past or present handling, storage, treatment, transportation or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to health or the environment, the Administrator may ... issu[e] such orders as may be necessary to protect public health and the environment."

10. Section 4004 (a) of RCRA, 42 U.S.C. § 6944 states, in pertinent part, that the "...Administrator shall promulgate regulations containing criteria for determining which facilities shall be classified as sanitary landfills and which shall be classified as open dumps...."

11. Section 1004 of RCRA, 42 U.S.C. § 6903 defines the term "open dump" to mean any facility or site where solid waste is disposed of which does not meet all the criteria for being classified as a sanitary landfill under section 4004 and which is not a facility for disposal of hazardous waste.

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12. The federal regulations promulgated at 40 C.F.R. Part 258, entitled Criteria for Municipal Solid Waste Landfills, "establish [the] minimum national criteria ... for all municipal solid waste landfill units." 40 C.F.R. § 258.1.

13. The Landfill is a "municipal solid waste landfill unit," as that term is defined at 40 C.F.R. § 258.2.

14. Pursuant to 40 C.F.R. § 258.1(h), municipal solid waste landfill units which fail to meet the criteria set forth in Part 258 constitute open dumps.

15. Section 4005(a) of RCRA, 42 U.S.C. § 6945(a) states, in pertinent part: "...any solid waste management practice or disposal of solid waste or hazardous waste which constitutes the open dumping of solid waste or hazardous waste is prohibited."

16. The Landfill has been receiving municipal solid waste since at least 1984 and constitutes an "existing landfill" as that term is defined in 40 C.F.R. § 258.2. Existing municipal solid waste landfill units are subject to many of the requirements set forth in 40 C.F.R. Part 258.

17. Pursuant to 40 C.F.R. § 258.1, municipal solid waste landfills in operation as of 1994 that continue to accept solid waste for disposal, may not laterally expand unless the expansion cell or area meets certain design criteria as set forth in 40 C.F.R. § 258.40, including installation of an impermeable liner membrane and a leachate control system, which acting together, are designed to minimize uncontrolled leachate releases from the Landfill.

18. The Landfill is also subject to the Non-Hazardous Solid Waste Management Regulations of Puerto Rico, administered by the Puerto Rico Environmental Quality Board ("EQB").

19. The Landfill is not authorized by EPA to accept or dispose of "hazardous waste," as that term is defined in Section 1004(5) of RCRA, 42 U.S.C. § 6903(5), and in 40 C.F.R. § 261.3.

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20. The Municipality has been the "owner" of the Landfill since at least 1984, as that term is defined in 40 C.F.R. § 258.2. The Municipality has contributed and continues to contribute to the handling and disposal of solid waste at the Landfill in its capacity as an owner. The Municipality has informed EPA that the Commonwealth of Puerto Rico is the owner of record of a portion of the property on which the Landfill is located.

21. The Municipality has been the "operator" of the Landfill since at least 1984, as that term is defined in 40 C.F.R. § 258.2. The Municipality has contributed and continues to contribute to the handling and disposal of solid waste at the Landfill in its capacity as operator.

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23. The Municipality of Culebra is an island municipality located approximately 27 km to the east of the mainland of Puerto Rico. Culebra is approximately 30.1 square kilometers in size and has a population of about 1,818 people (U.S. Census, 2010).

24. The Landfill has an area of approximately 9 acres of which some 8 acres bears waste. The Landfill is located on the side of a hill overlooking the Atlantic Ocean. See Appendix 1: Maps.

25. The Landfill is located in a region that has an annual average rainfall of 33 inches per year.

26. The Municipality of Culebra and the Landfill are located over a volcanic rock formation composed of volcanic rocks, sandstone, limestone, conglomerate, lava, and volcanic tuff.

27. The predominant soil type underlying the Landfill is Descalabrado clay loam.

28. The Landfill is sited in a seismic zone as is the entire island of Puerto Rico.

[redacted]

29. The Landfill has been receiving municipal solid waste since at least 1984. The Landfill currently receives an average of approximately 4 tons per day of solid waste, all from the Municipality of Culebra.

30. EQB records indicate that the Landfill was originally sited in 1972. The Landfill site, said to be chosen from a limited number of possible sites not under the control of the U.S. Navy, was recognized by EQB and the Solid Waste Authority, at the time, as not being ideal for a landfill.

31. The Landfill is located in an area of Culebra used by the U.S. Navy for several live fire training exercises, including, according to the U.S. Army Corps of Engineers, 75mm and 155mm rounds in 1924; small arms and 81mm mortars in 1936; and boat-to-beach firing of 5-inch and 6-inch projectiles in 1941.

32. Past reports from the EQB, the Puerto Rico Solid Waste Authority, and the Puerto Rico Department of Natural and Environmental Resources have identified significant deficiencies at the Culebra Landfill, including no stormwater controls, no liner or other leachate controls, no groundwater monitoring program, leachate seeps, and poor daily cover.

33. In a letter dated September 30, 2014, EQB stated that the Landfill was not in compliance with its solid waste regulations and required that the Municipality permanently cease operations and close the Landfill.

34. The Puerto Rico Solid Waste Authority has reported that the Landfill had expanded some 400 square meters (m^2) beyond its western boundary.

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35. On or about March 21, 2001, March 21, 2006, September 17, 2010, and September 17, 2014, authorized representatives of EPA inspected the Landfill (the "2001, 2006, 2010, and 2014 Inspections," respectively). During the 2001, 2006, 2010, and 2014 Inspections and at other times, EPA obtained information concerning the Landfill and its waste disposal practices, including the facts set forth herein.

36. Proper cover is required to reduce risk of aircraft-wildlife strikes, control disease vectors, fires, leachate generation, odors, blowing litter, and scavenging. The Landfill did not have proper cover as required by 40 C.F.R. §§ 258.21 and 122.26 (Clean Water Act) during the 2001, 2006, 2010, and 2014 Inspections. During the 2006 and 2014 Inspections, many birds were visible on uncovered waste.

37. During the 2001, 2006, 2010, and 2014 Inspections, some of the Landfill's surfaces had steep slopes that were likely to be unstable.

38. During the 2001, 2006, 2010, and 2014 Inspections, EPA observed that the Landfill lacked stormwater runoff controls. These controls are required by 40 C.F.R. §§ 258.26 and 122.26 (Clean Water Act). The Landfill also had no system for the retention or treatment of stormwater.

39. During the 2006 Inspection, EPA observed a concrete septic wastewater tank overflowing. Wastewater from the tank was observed flowing from the facility to the Flamenco Lagoon, part of the Culebra National Wildlife Refuge. Prior to the 2014 Inspection, the Municipality had ceased use of this tank.

40. Uncontrolled surface water run-off can flow onto and infiltrate and percolate into surface soils, potentially adversely impacting soil and/or groundwater. Uncontrolled run-off is more likely to occur in instances where, as at the Landfill, there is substantial rainfall and steep surface gradients with poor or no landfill cover.

41. The Landfill does not have an operational impermeable liner. Liners, which are required for "new municipal solid waste landfill units" and "lateral expansions" as those terms are defined in 40 C.F.R. § 258.2, minimize the possibility that liquids, including leachate, can percolate and seep through a landfill, infiltrate the subsurface, and contaminate soil and groundwater.

42. Leachate is a "liquid that has passed through or emerged from solid waste and contains soluble, suspended or miscible materials removed from such waste." 40 C.F.R. § 258. 2. Landfill leachate may be contaminated with hazardous constituents.

43. Increased volumes of leachate are generated by and released from landfills that do not have requisite engineering controls in place such as surface water run-on controls, impermeable liners and leachate collection systems. The Landfill's failure to have these

controls increases the likelihood that the aquifer beneath the Landfill can become contaminated by operations at the Landfill.

44. Municipal solid waste may contain microorganisms that can cause disease in humans and animals.

45. Pursuant to 40 C.F.R. § 258.1, MSWLF facilities in operation as of 1994 that continue to accept solid waste for disposal, may not laterally expand unless the expansion cell or area meets certain design criteria as set forth in 40 C.F.R. § 258.40, including installation of an impermeable liner membrane and a leachate control system, which acting together, prevent uncontrolled leachate releases from the MSWLF.

46. An adequate groundwater monitoring system is necessary to determine if contaminants are being released into groundwater and are migrating away from the Landfill. 40 C.F.R. § 258.51.

47. Groundwater monitoring wells have been installed at and adjacent to the Landfill.

48. As of September 2014, no groundwater monitoring program was in existence at the Landfill.

49. Except for the entrance gate and initial access road fencing, the Landfill does not sufficiently fence off the Landfill or otherwise prevent unauthorized public access to the Landfill as required at 40 C.F.R. § 258.25. Failure to adequately control public access increases the likelihood of individuals entering the Landfill and the potential for injury and unobserved waste disposal, thereby potentially jeopardizing human health.

50. Pursuant to 40 C.F.R. § 258.14, new MSWLF units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Director of an approved State/Tribe that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

51. Pursuant to 40 C.F.R. §§ 258.1 and 258.15, lateral expansions of MSWLF Facilities in operation since 1994 that are located in unstable areas must demonstrate that special engineering measures have been incorporated into the expansion design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted.

52. Landfill side slopes exceeding the standard 3:1 ratio (ratio of horizontal to vertical which may also be described as a slope of 18.4 degrees or 33 percent) represent an increased potential for unstable slopes. EPA observed steep slopes exceeding 3:1 (greater than 18.4 degrees or 33%) during the 2001, 2006, and 2014 Inspections. EPA measured the southern slope at 2.2:1 (24.4 degrees or 45%) during the 2014 Inspection. Steep slopes are at higher risk of failure in seismic and extreme weather (*e.g.,* hurricane) zones.

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53. The U.S. Geological Survey has ranked the U.S. coastal areas by the number of hurricanes expected to occur during a 100-year period based on historical data. Puerto Rico was classified at the most extreme category of risk, with more than 60 hurricanes/100 years.

54. The hill on which the Landfill is sited and portions of the Landfill itself have been rated as at severe risk from wind hazard by the Federal Emergency Management Agency (FEMA).

55. The hill on which the Landfill is sited and much of the Landfill have been rated as at moderate risk of landslide by FEMA.

[redacted]

56. The waters of the Atlantic Ocean at the base of the hill on which the Landfill is sited have been designated critical habitat pursuant to the federal Endangered Species Act of 1973 (ESA) for the threatened green turtle (*Chelonia mydas*). All sea turtles nesting on U.S. beaches or found in U.S. waters are designated as threatened or endangered under the ESA. Turtles may mistake plastic bags, Styrofoam, and trash floating in the water as food and die when this trash blocks their intestines.

57. The hill on which the Landfill is sited slopes directly to the west to the Canal Luis Peña Natural Reserve (the "Reserve"). The Reserve has been identified by the Puerto Rico Coastal Zone Management Program, which includes representatives of the U.S. National Oceanic and Atmospheric Administration (NOAA) and the U.S. Fish and Wildlife Service (FWS), as an area of high ecological value, which deserves special protection. In particular, it is predicted that in less than a decade the Reserve reefs could move toward a critical stage in its ongoing loss of biodiversity. Past this critical stage, it will require large economic investments and management efforts to stop the ongoing loss of biodiversity. Otherwise, the Puerto Rico Coastal Zone Management Program has concluded that these reefs will be irreversibly lost in little less than two decades.

58. The presence of the Landfill adjacent to the Reserve has been considered by the Puerto Rico Coastal Zone Management Program to be incompatible with the purpose of conservation and protection. The Landfill has been identified as a possible source of contaminants in the form of leachate that moves through groundwater towards the marine communities of Bahia Tamarindo. The action of the wind on the landfill wastes results in scattering of plastic bags over the waters and over the vegetation of the Reserve, putting at risk marine life. The leachate from the landfill may be affecting the quality of water and nutrients and substances that reach the Reserve by runoff and may be an agent for diseases and for the growth of algae that compete with coral.

59. Culebra's coastal waters (of 98 feet in depth or less) were designated as critical habitat by NOAA in 2008 for the coral species elkhorn (*Acropora palmata*) and staghorn (*Acropora*

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cervicornis), both threatened species under the ESA. Live, juvenile elkhorn coral has been found in the shallow waters just to the west of the Landfill.

60. Flamenco Lagoon, in the Culebra National Wildlife Refuge, receives stormwater runoff from the Landfill. The Flamenco Lagoon has been identified by the U.S. Fish and Wildlife Service as a critical wildlife area for the White-cheeked pintail (*Anas bahamensis*), Ruddy duck (*Oxyura jamaicensis*), Caribbean coot (*Fulica caribaea*), Least grebe (*Tachybaptus dominicus*), and White-crowned pigeon (*Patagioenas leucocephal*). The Ruddy duck, Caribbean coot, and Least grebe have been identified by the Commonwealth of Puerto Rico as threatened species.

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61. The Landfill is located 5,340 feet (1.0 mile) from the Benjamín Rivera Noriega Airport, an active airport.

62. Aircraft-wildlife strikes are the second leading causes of aviation-related fatalities. Landfills attract "hazardous wildlife" and are, therefore, normally incompatible with airports.

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64. Landfill gas is generated during the natural process of anaerobic decomposition of refuse contained in a landfill. Landfill gas is predominantly methane and carbon dioxide, and small amounts of non-methane organic compounds ("NMOCs") such as ethane, toluene and benzene. NMOCs are a collection of toxic pollutants, which when released into the atmosphere can lead to adverse effects. Methane gas is odorless and highly combustible. The accumulation of methane gas within a landfill can potentially cause fires and/or explosions.

65. Subsurface migration is the underground movement of landfill gas from landfills to other areas within or outside the landfill property. Most subsurface migration occurs at older, unlined landfills because there is minimal barrier for lateral migration of landfill gas. It is possible for landfill gas to travel underground, accumulate in enclosed structures, and ignite. Incidences of subsurface migration have caused fires and explosions on both landfill property and private property.

66. Carbon dioxide and methane are greenhouse gases that can contribute to climate change, and NMOCs contribute to ozone formation. Methane is of particular concern because it is extremely effective in trapping heat in the atmosphere.

67. As of September 2014, the Landfill did not have an operational explosive gases control system.

68. A methane monitoring system is required pursuant to 40 C.F.R. § 258.23.

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69. In 2015, the U.S. Army Corps of Engineers has advised EPA that: "Since the island of Culebra was heavily used for military operations and there is the potential to encounter munitions [unexploded ordnance] over much of the island, anyone performing ground-disturbing activities near the LF [Landfill] should use caution. Depending on the nature of their work, they may want to consider using a contractor specialized in munitions work to review their proposed operations and advise on appropriate safety measures."

[redacted]

70. The U.S. Department of Health & Human Services Centers for Disease Control and Prevention (CDC) and the Puerto Rico Department of Health report local transmission of the Zika virus infection through the mosquito in Puerto Rico. Both agencies recommend the practice of enhanced precautions in Puerto Rico to protect from mosquito bites.

71. Puerto Rico has experienced epidemic dengue activity periodically since 1963. Dengue continues to be endemic in Puerto Rico, with three to nine thousand suspected dengue cases reported during non-outbreak years. Since 1990, there have been four large epidemics of dengue.

72. Chikungunya virus (CHIKV) caused large epidemics throughout the Caribbean in 2014, including Puerto Rico.

73. The Zika virus is mainly transmitted by a bite of an infected *Aedes aegypti* or *Aedes albopictus* mosquito. *Aedes* mosquitos also spread dengue and chikungunya viruses. *Aedes aegypti* is present throughout Puerto Rico. These mosquitoes typically lay eggs in and near standing water. They prefer to bite people, and live indoors and outdoors near people. Mosquitoes that spread chikungunya, dengue, and Zika are aggressive daytime biters. They can also bite at night.

74. Zika virus disease is a disease caused by Zika virus that is spread to people primarily through the bite of an infected *Aedes* species mosquito. Zika virus can be spread from a pregnant woman to her fetus and has been linked to a serious birth defect of the brain called microcephaly in babies of mothers who had Zika virus while pregnant. Zika virus can also be sexually transmitted from an infected man or woman to his or her sex partner(s). There has also been a reported increase in the number of people who have been infected with Zika virus who also have Guillain-Barré syndrome in Puerto Rico.

75. Dengue is a disease caused by any one of four closely related dengue viruses. The principal symptoms of dengue fever are high fever, severe headache, severe pain behind the eyes, joint pain, muscle and bone pain, rash, and mild bleeding. Dengue hemorrhagic fever is a more severe form of dengue infection. It can be fatal if unrecognized and not properly treated in a timely manner. Dengue hemorrhagic fever is caused by infection with the same viruses that cause dengue fever.

76. The most common symptoms of chikungunya virus infection are fever and joint pain. Other symptoms may include headache, muscle pain, joint swelling, or rash and the symptoms

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can be severe and disabling. Newborns and other vulnerable populations are at risk for severe complications.

77. Under 40 C.F.R. § 258.22, "Disease Vector Control," owners or operators of all municipal solid waste landfill units must prevent or control on-site populations of disease vectors (*i.e.,* any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans) using techniques appropriate for the protection of human health and the environment.

78. Mosquitoes breed in standing water, including stormwater run on and run off, leachate seepage, surface ponding on and around a landfill, roadway drainage, sedimentation ponds, conveyance channels and ditches, and exposed waste rainwater catchment receptacles (*e.g.,* scrap tires).

79. Flight range studies suggest that most female *Aedes aegypti* may spend their lifetime in or around the sites where they emerge as adults and they usually have an average range of 400 meters.

80. PR 251, the main route to Playa Flamenco, several homes, and beach, snorkeling, and kayaking areas are all within 400-meters of the landfill.

81. On September 17, 2016, EQB sent the Municipality a letter strongly recommending the implementation of comprehensive procedures to mitigate the risk posed by mosquito-borne disease. In particular, the letter stressed that the Municipality was required to comply with the EQB solid waste regulations to reduce the potential for mosquito breeding in all standing waters at the Landfill, including those impacted by stormwater run on and run off, leachate seepage, surface ponding on and around the Landfill, access and egress roadway drainage, sedimentation ponds, conveyance channels and ditches, and exposed waste rainwater catchment receptacles (*e.g.,* scrap tires). The September 17, 2016 letter was co-signed by EPA.

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82. The Municipality has provided EPA with documents in Spanish which appear to indicate that the Commonwealth of Puerto Rico may own part of the Landfill. [redacted]

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83. The Municipality presently conducts only limited recycling. An improved recycling program would reduce the amount of waste from the Municipality that has to be disposed of at the Landfill before its closure.

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84. On March 30, 2012, EPA issued an Administrative Compliance Order, pursuant to the provisions of Section 309(a) of the Clean Water Act, 33 U.S.C. §1319(a), Docket No.: CWA-02-2012-3113 ("CWA-ACO"), requiring the Municipality to comply with the applicable provisions of its National Pollution Discharge Elimination System Stormwater Multi-Sector General Permit ("NPDES MSGP") for storm water discharges associated with industrial activities (See Appendix 4: Culebra Eco-System Protection Plan and Appendix 7: Closure and Post-Closure Plans Requirements).

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Figure 1: Culebra and Vieques Islands

Figure 2: Culebra Landfill Location

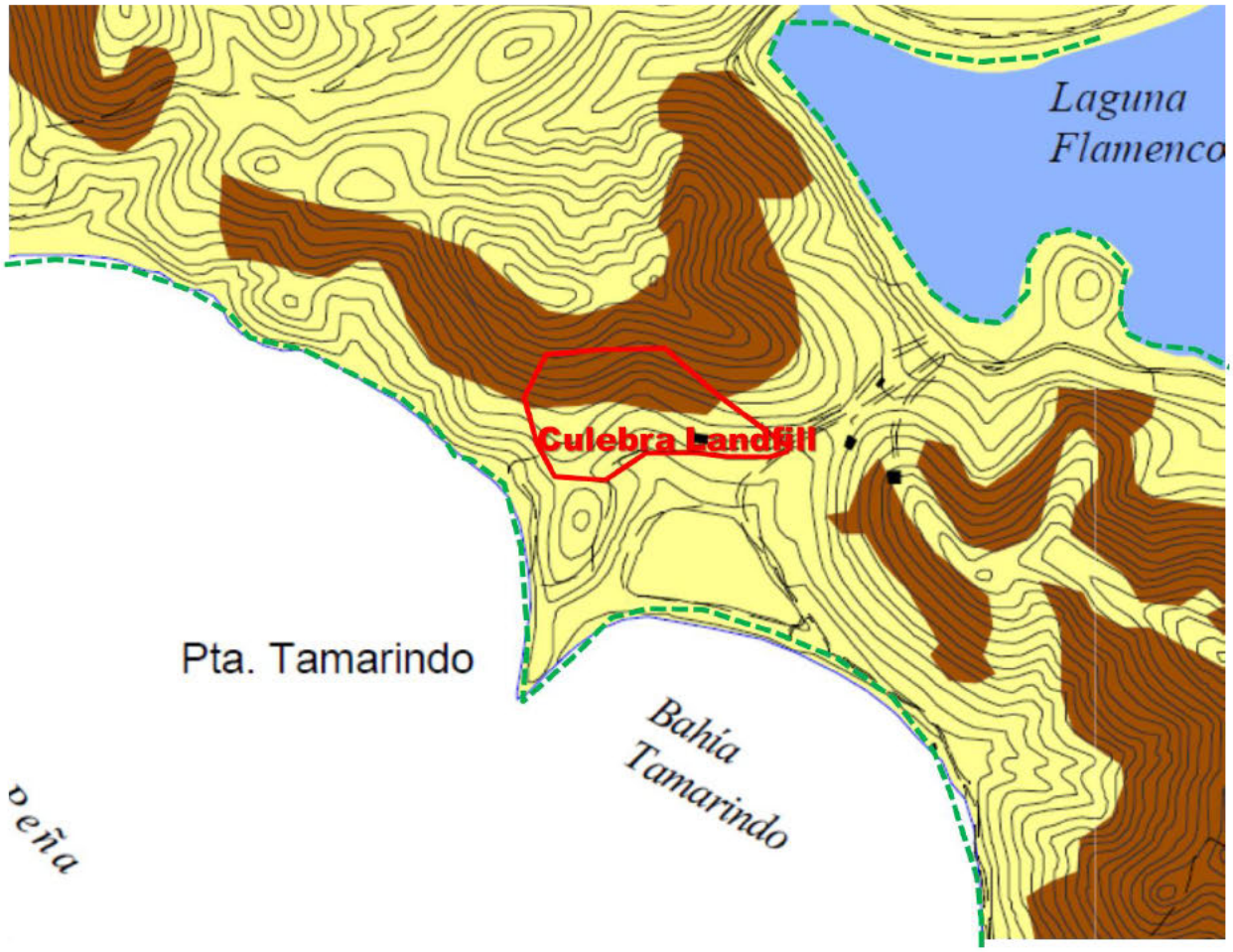

Figure 3: Culebra Landfill Approximate Location